

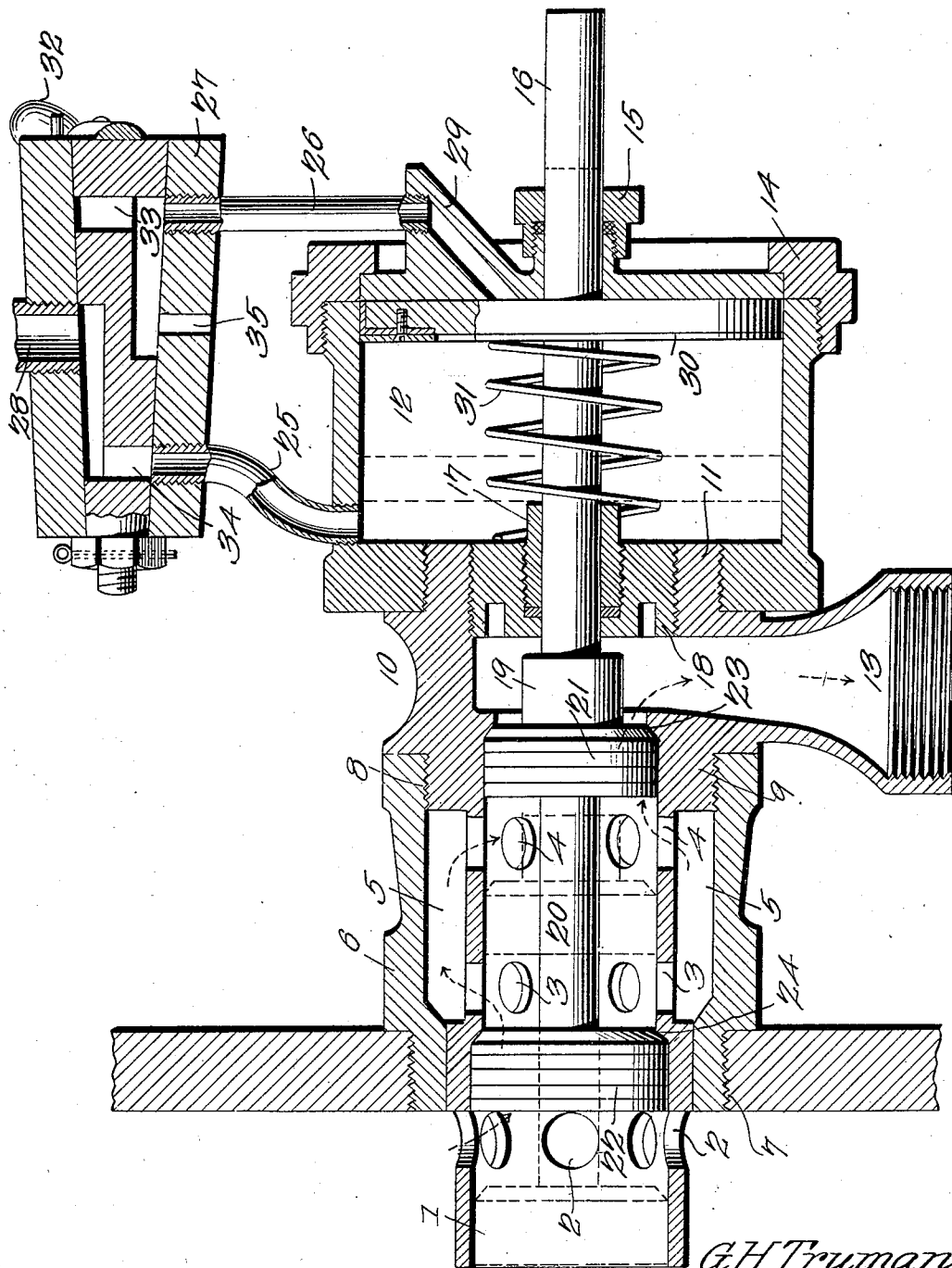
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G. H. TRUMAN.
BLOW-OFF COCK.

APPLICATION FILED MAR. 26, 1902.

NO MODEL.



Witnesses
E. J. Stewart
Full. Smith.

G. H. Truman
Inventor
by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE HENRY TRUMAN, OF FARGO, NORTH DAKOTA.

BLOW-OFF COCK.

SPECIFICATION forming part of Letters Patent No. 725,893, dated April 21, 1903.

Application filed March 26, 1902. Serial No. 100,118. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HENRY TRUMAN, a citizen of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented a new and useful Blow-Off Cock, of which the following is a specification.

This invention relates to blow-off cocks.

The object of the invention is to provide a blow-off cock which will be thoroughly efficient in use and in which entrance of sediment or mud within the structure and around the valve-seats will be positively obviated. Most devices of this character as heretofore constructed are at times rendered practically inoperative by an accumulation of scale or sediment in the waterway, which frequently finds its way to the valve-seat, and thus prevents the valve from seating squarely, thus to cut off escape of water after proper blowing out has been effected. A further obstacle encountered is the entrance into the air-cylinder of water, which will frequently back up into the air-supply pipes and freeze there, and thus prevent the cock from operating.

As will be seen from the description hereinafter given, under the structure presented by this invention these objectionable features are overcome in a ready, practical, and feasible manner and without increasing the parts of the cock.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in a novel construction and combination of parts of a blow-off cock, as will be hereinafter fully described and claimed.

In the accompanying drawing, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof, and in the drawing the figure is a view in sectional elevation of a blow-off cock constructed in accordance with this invention.

Referring to the drawing, 1 designates the waterway, which projects within the boiler

below the water-line thereof and is provided with three sets of orifices 2, 3, and 4, the orifices 2 being normally disposed within the boiler and the orifices 3 and 4 within a water-space 5, formed between the walls of a sleeve 6 and the waterway, the sleeve having a threaded connection with the boiler at 7. The outer end of the sleeve is interiorly threaded at 8 to engage an exteriorly-threaded shoulder 9, projecting from one side of a head 10, forming a continuation of the waterway, the opposite side of the head being provided with a similar threaded extension 11, exteriorly threaded and engaged by the air-cylinder 12. The head has associated with it a discharge-pipe 13, through which the water from the boiler escapes. The outer end of the air-cylinder has associated with it a head 14, provided with a centrally-disposed stuffing-box 15, in which works the outer portion of a piston-rod 16, the inner portion of which works in a stuffing-box 17, carried by a nut 18, engaging interior threads on the extension 11. The piston-rod projects into and is suitably connected with a head 19, constituting the outer end of a valve-stem 20, upon which are mounted two valves 21 and 22, which may be of the usual or any preferred construction and when in the position shown in the figure engage seats 23 and 24, formed in the inner walls of the waterway, the valve 22 being somewhat larger in diameter than the valve 21.

Connecting with the cylinder 12 is an air-supply pipe 25, and connecting with the head 14 is a similar pipe 26, the upper ends of these pipes being connected with a two-way air-cock 27 and communicating with a suitable source of air under pressure through a pipe 28. As is herein shown, the pipe 26 communicates with a hollow offset 29 on the head 14; but it will be obvious that, if preferred, it may be tapped into the head directly and still be within the scope of the invention. The piston-rod has associated with it a piston 30 of any preferred construction, and disposed upon the piston-rod between the inner side of the piston and the nut 18 is a spring 31, which operates to hold the water-controlling valves seated when there is no pressure on the boiler.

The operation of the cock is as follows:

Assuming the parts to be in the position shown, in which case the water-controlling valves are seated, thereby to preclude escape of any water in the boiler, the handle 32 of the air-valve is moved downward to bring the duct 33 into register with the pipe 26, whereupon air will enter back of the piston and force the same forward against the boiler-pressure and moving the water-controlling valves to the position shown by dotted lines, the valve 22 being projected to the end of the waterway, thereby clearing the orifices 2, while the valve 21 occupies a position midway between the orifices 3 and 4. In the forward movement of the valve 23 any mud or scale that may have accumulated in the forward portion of the waterway or in the orifices 2 will be cut loose, so that reseating of the valve 22 will not be interfered with. The water in the boiler now enters through the orifices 2 into the waterway, thence out through the orifices 3 to the water-space 5, and thence into the orifices 4, and thence out through the discharge 18, the direction of travel of the water being indicated by dotted lines. In addition to the provision of the stuffing-box 17, which would preclude entrance of any water to the cylinder, the gap between the nut 18 and the opposed wall of the head will operate additionally to prevent any passage of water into the cylinder and thence to the air-pipes. So long as the handle of the air-valve remains in the position to which it is moved the water-controlling valves will remain in the position indicated by dotted lines; but as soon as the handle is turned to bring the duct 34 of the valve into register with pipe 25, thereby closing passage of air to the pipe 26, air will be admitted in front of the piston, and thus force it back and seat the water-controlling valves, the air contained in the cylinder being forced out through a port 35, provided in the air-valve casing.

It will be seen from the foregoing description that the two objects stated—namely, the prevention of any accumulation of scale in the waterway, which would tend to prevent the water-controlling valves from seating, and

the positive precluding of entrance of water to the air-cylinder—are obviated in a thoroughly practical and effective manner. Moreover, the structure as a whole being of great simplicity of construction danger of derangement in use is reduced to a minimum, while repairs when required may readily be effected.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A blow-off cock having a waterway provided with induction and eduction ports the former of which communicate with the boiler, a sleeve inclosing the latter ports and providing a water-space, and positively-operated water-controlling valves working in the waterway, the forward one of which normally occupies a position in rear of the induction-ports, whereby upon movement being imparted thereto to establish communication with the water-space, any accumulation of sediment or scale within that portion of the waterway projecting within the boiler will be removed.

2. In a blow-off cock, a casing provided at one end with a waterway having induction and eduction ports, water-controlling valves working therein, a cylinder at the opposite end of the casing, a piston arranged within the cylinder and operatively connected with the stem of the valves, means for supplying air under pressure to the cylinder to project or retract the piston, a spring coacting with the piston and operating to hold the water-controlling valves seated when there is no steam-pressure thereon, and a discharge communicating with the waterway and presenting a gap separating the air-cylinder and the water-space, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE HENRY TRUMAN.

Witnesses:

E. A. HUGHES,
ALEX. STERN.